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09/955,223	09/19/2001	Simon Riches	1509-218	8329

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EXAMINER	
CHAI, LONGBIT	
ART UNIT	PAPER NUMBER
2131	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/955,223	RICHES ET AL.	
	Examiner	Art Unit	
	Longbit Chai	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *90-98,100-108,110-117 and 119-128* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *90-98,100-108,110-117 and 119-128* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 September 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Currently pending claims are 90 – 98, 100 – 108, 110 – 117 and 119 – 128.

Response to Arguments

2. Applicant's arguments with respect to the subject matter of the instant claims have been fully considered but are not persuasive.

3. As per claim 90, Applicant asserts that "Johnston's parity information appears to be written as part of a recording session and the identified portion appears to refer to writing to the buffers and not to the tape cartridge" (Remarks: Page 14 4th-Para) and thereby Johnson does not teach "after the tape drive receives the reposition command, writing the code into a memory incorporated within the tape cartridge". Examiner respectfully disagrees with the following reasons:

- Johnston teaches (1) two different types pf positioning (repositioning) – a request to position relative to the current position of the tape or a request to position to an absolute position of the tape (Johnston: Column 8 Line 54 – Column 9 Line 23), (2) RAW (Read After Write) is performed only when writing to tape in a way that the data from the track was just written is read-back and its checksum / parity is calculated (Johnston: Column 10 Line 50 – 53) and then the checksum / parity (i.e. the code) along with the block ID are also written to the memory of the tape (Johnston: Column 11 Line 18 – 21), (3) Examiner notes, in order to read-back the data that was just written into the tape for calculating the checksum / parity, the tape must be repositioned back at the original starting point of the data set (i.e. the original block of data just written to tape) (Johnston: Column 10 Line 40 – 67).

- Johnston also teaches, during RAW (Read-After-Write) – i.e. after receiving reposition command, that track's checksum / parity is also re-calculated (Johnston: Column 10 Line 62 – 63) and in the situation of having minimal error (i.e. the error is correctable), the corrected RAW checksum must be **obviously** written, in stead of the original checksum / parity that was supposed to be written (Johnson: Column 10 Line 66 – Column 11 Line 2) so that the data integrity (represented the correction bytes of user data bytes) can be validated later on the next data check since the checksum / parity is used for verifying the previously written corrected data and as such this teaching meets the claim language recited as "after the tape drive receives the reposition command, writing the code into a memory incorporated within the tape cartridge"; where the checksum / parity is interpreted as the code and a part of the tape memory is interpreted as a memory incorporated within the tape cartridge.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 90, 92, 94 – 97, 101, 103, 105 – 107, 110, 112, 114 – 116 and 124 – 128 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston et al. (U.S. Patent 5,287,478).

As per claim 90 and 110, Johnston teaches a method of recording data during successive data recording sessions (Johnston: Column 9 Line 25 – 40: a session is merely interpreted as a set / group of data) on a data storage tape of a tape cartridge loaded in a tape drive, the sessions occurring at different times, the method comprising recording data in each recording session by:

positioning the tape prior to the start of the data recording session so the tape is positioned to a start point at the start of a data set to be recorded during the session (Johnston: Column 9 Line 14 – 15, Column 8 Line 40 – 44 and Column 8 Line 54 – Column 9 Line 23: two different types pf positioning (repositioning) – a request to position relative to the current position of the tape or a request to position to an absolute position of the tape).

after the session has started and during the data recording session, writing a data set to the tape (Johnston: Column 9 Line 26 – 27, Column 8 Line 40 – 44 and Column 8 Line 54 – 62);

after the data set has been written to the tape, issuing a reposition command to the tape drive so the tape is repositioned (Johnston: Column 10 Line 50 – 53 and Column 11 Line 18 – 21: RAW (Read After Write) is performed only when writing to tape in a way that the data from the track was just written is read-back and its checksum is calculated (Johnston: Column 10 Line 50 – 53) and then the checksum (i.e. the code) along with the block ID are also written to the memory of the tape (Johnston: Column 11 Line 18 – 21). Examiner notes, in order to read-back the data that was just written into the tape for calculating the checksum, the tape must be repositioned back at the original starting point of the data set (i.e. the original block of data just written to tape)).

creating a code representative of the data in the data set that has been written in the recording session between the position command and reposition commands (Johnston:

Column 5 Line 44 – 54, Column 10 Line 48 – 55 and Column 9 Line 27: ECC / checksum are indeed the data signature that can uniquely represent the correctness of a set (or group) of data and checksum is calculated to verify that the track has been properly written into the track and the data is always written one group at a time and thereby Johnston teaches the code created after each data recording session representing the recorded data and the session during which the data was recorded to meet the claim language);

after the tape drive receives the reposition command, writing the code into a memory incorporated within the tape cartridge (Johnston: Column 10 Line 50 – 53, Column 11 Line 18 – 21 and Column 10 Line 66 – Column 11 Line 2: RAW (Read After Write) is performed only when writing to tape in a way that the data from the track was just written is read-back and its checksum is calculated (Johnston: Column 10 Line 50 – 53) and then the checksum (i.e. the code) along with the block ID are also written to the memory of the tape (Johnston: Column 11 Line 18 – 21). Examiner notes, in order to read-back the data that was just written into the tape for calculating the checksum, the tape must be repositioned back at the original starting point of the data set (i.e. the original block of data just written to tape) and the corrected checksum is also obviously written into the tape memory since the checksum is used for verifying the previously written corrected data (Johnston: Column 10 Line 66 – Column 11 Line 2));

in response to the code being written onto the memory, incrementing a code counter indicating a count of the number of codes written into the memory; and writing the count into a count field of the memory (Johnston: Column 11 Line 18 – 21 and Column 11 Line 18 – 19: It would have been obvious to a person with ordinary skill in the art at the time the invention was made to recognize that the code counter is indeed a direct implication of the total number of the block IDs that was written in to the tape, as taught by Johnston).

As per claim 91, 102 and 111, Johnston teaches signature is coded to include a checksum or a CRC (Johnston: Column 10 Line 52 – 53: ECC / checksum are indeed the data signature that can uniquely represent the correctness of a set (or group) of data).

As per claim 92, 103 and 112, Johnston further teaches said the code is a checksum or a cyclic redundancy check (CRC) (Johnston: Column 10 Line 52).

As per claim 94, 105 and 114, Johnston further teaches the memory is a dedicated area of the tape (Johnston: Column 11 Line 18 – 21).

As per claim 95, 106 and 115, Johnston further teaches reading back a data set from the tape; creating a further code representative of the data in the data set read back from the tape; comparing the two codes; and confirming the data set as-valid only if the two codes agree (Johnston: Column 10 Line 48 – 55 and Column 9 Line 27: Johnston teaches ECC checksum is calculated to verify that the track has been properly written into the track and the data is always written one group at a time and thereby Johnston teaches the code created after each data recording session representing the recorded data and the session during which the data was recorded to meet the claim language).

As per claim 96, Johnston further teaches the comparing and confirming steps are carried out by a controlling software application (Johnston: Column 3 Line 19 – 26 and Column 10 Line 48 – 55: computer peripheral application software of data tapes).

As per claim 97, 107 and 116, Johnston teaches at least one of the comparing and confirming steps is carried out by an external reader which accesses and displays information

recorded in the memory (Johnston: Figure 1 Element 230 // 205 and Column 5 Line 46 – 54: the external reader is interpreted as the computer processor system which is external to the tape cartridge as shown in Figure 1 Element 230 // 205. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993)).

As per claim 101, Johnston teaches a tape drive to receive the tape cartridge, and a processor having software to control the tape drive to record data in each recording session by performing the steps of claim 90 (Johnston: Column 10 Line 50 – 53 and Column 11 Line 18 – 21).

As per claim 124, Johnston teaches preventing rewriting of a signature by limiting access to the memory to allow only (a) retrieval of signatures, and (b) creating of a new signature at a previously unused counter location (Johnston: Column 12 Line 58 – 66 and Column 11 Line 16 – 21: the system would hold off making any data transfer to RD/WR block upon the detection of "NO SPACE AVAILABLE" flag is set and, as a result, no more checksum code would be created unless the use of retrieval of checksum and updating with the new the checksum).

As per claim 125, Johnston teaches the signature is written to the next free slot of the memory at the same time that the signature counter is incremented in the code counter (Johnston: Column 11 Line 16 – 21 and Column 11 Line 18 – 19: It would have been obvious to a person with ordinary skill in the art at the time the invention was made to recognize that the

code counter is indeed a direct implication of the total number of the block IDs that was written in to the tape, as taught by Johnston).

As per claim 126 – 128, Johnston teaches read back data set from the tape is in connection with a recording session during which data are restored (Johnston: Column 5 Line 52 – 54: data recovery is equivalent to data restoration).

5. Claims 93, 104 and 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston et al. (Patent Number: 5287478), in view of Maekawa et al. (Patent Number: 6160679).

As per claim 93, 104 and 113, Johnston does not disclose expressly the memory is a cartridge memory.

Maekawa teaches the memory is a cartridge memory (Maekawa: see for example, Column 3 Line 43 – 49).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Maekawa within the system of Johnston because Maekawa teaches providing an auxiliary memory associated with the tape cartridge so that the problems of limitation in size as well as the security concerns of the discrimination information can be resolved (Maekawa: see for example, Column 3 Line 14 – 52).

6. Claims 98 – 100, 108 – 109, 117 – 118 and 120 – 123 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston et al. (Patent Number: 5287478), in view of Shnelvar (Patent Number: 6374266).

As per claim 98, 108 and 117, Johnston teaches the memory space availability for data RD/WR access (Johnston: Column 12 Line 58 – 66: the system would hold off making any data transfer to RD/WR block upon the detection of "NO SPACE AVAILABLE" flag is set). However, Johnston does not disclose expressly checking whether the number of codes written into the memory has reached a predetermined number and, if so, reporting the tape as read only.

Shnelvar teaches checking whether the number of codes written into the memory has reached a predetermined number and, if so, reporting the tape as read only (Shnelvar: Column 6 Line 17 – 21, Column 7 Line 34 – 40 and Column 8 Line 29 – 35 & Figure 8: (a) Shnelvar teaches the writing process continues to be repeated until there are no space (i.e. reaching a predetermined number of codes that can be stored before overflow) in the buffer to be processed – i.e. no more "writing" is allowed. which is equivalent to "Read Only", thereafter (b) Besides, it is also well-known in the field that a data storage device (e.g. floppy disk) would notify the user that no more data can be taken in case of storage space is full (i.e. DISK FULL) – i.e. the system can not overwrite the data storage device with the limited available memory space).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Shnelvar within the system of Johnston because (a) Johnston teach providing a more reliable DDS data tape system by using an unique data signature / ECC during writing / reading of data to enhance data integrity (Johnston: Column 3 Line 25 – 26 and Column 5 Line 45 – 55) and (b) Shnelvar teaches using an unique data signature (such as hash or checksum) to further improve capacity management when storing the system's program and data files (Shnelvar: see for example, Column 1 Line 30 – 39).

As per claim 99, 109 and 118, Johnston as modified teaches said predetermined number of entries is 16 (Shnelvar: see for example, Figure 3 Element 60: Shnelvar does not disclose expressly predetermined number of entries is 16. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Shnelvar to accommodate predetermined number of entries is 16 because Shnelvar teaches using a table to store the code (Shnelvar: see for example, Figure 3 Element 60).

As per claim 100, Johnston as modified teaches comparing the codes and number of entries against information held on a secure database (Shnelvar: see for example, Column 5 Line 35 – 60, Column 6 Line 17 – 21 & Johnston: Column 10 Line 48 – 55).

As per claim 120, Johnston as modified teaches the method is performed to backup data of a computer to the data storage tape so that the data set written to the tape is the set of data of the computer being backed up and the created code is indicative of the backed up data (Shnelvar: Column 1 Line 30 – 38 and Column 5 Line 51 – 52).

As per claim 121 and 122, Johnston as modified teaches writing into different portions of the area, different codes corresponding with each different data set written into the tape as a result of writing the different data sets into the tape; performing a restoration or validation operation of a data set on a tape of a tape cartridge loaded in the drive; the restoration or validation operation including: (a) causing the tape drive to comply with a request to report the code of a data set required to be restored or validated by reading the requested code from the portion of the memory area where the code for the data set required to be restored or validated is located; (b) positioned the tape to the start of the data set to be restored or validated; (c) then

reading the data set to be restored or validated back from the tape; (d) generating a new code corresponding with the data set read during (c), the new code being generated externally of the memory; and (e) after completion of sep (c), comparing the new code generated during (d) with the code read during (a) to determine if the data set read during (c) is valid or invalid (Johnston: Column 8 Line 40 – Column 9 Line 40 and Column 10 Line 46 – 64) & (Shnelvar: Figure 3 & Column 5 Line 35 – Column 6 Line 46 and Column 7 Line 12 – Column 8 Line 35: a session is merely interpreted as a set / group of data) on a data storage tape).

As per claim 123, Johnston as modified teaches the tape drive includes the processor arrangement for (i) generating the new code (Shnelvar: Column 6 Line 18 – 21).

7. Claim 119 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston et al. (Patent Number: 5287478), in view of Ishiguro (Patent Number: 4788641).

As per claim 119, Johnston does not disclose expressly the processor software includes an erase command.

Ishiguro teaches the processor software includes an erase command (Ishiguro: see for example, Column 3 Line 60 – 61).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Ishiguro within the system of Johnston because Ishiguro teaches providing a method that a plurality of commands and data can be stored and pre-fetched in a magnetic tape system (Ishiguro: see for example, Column 1 Line 10 – 14).

Accordingly, Johnston as modified teaches the processor software includes an erase command that erases both the data on the tape and the contents of the memory (Ishiguro: Column 3 Line 60 – 61; Johnston: Column 11 Line 18 – 21: the Erase command would be like

Write command that applies to both data and subcode (i.e. checksum) written into the tape and the memory space of the track, respectively).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Longbit Chai whose telephone number is 571-272-3788. The examiner can normally be reached on Monday-Friday 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Longbit Chai
Examiner
Art Unit 2131

LBC

CHRISTOPHER REVAK
PRIMARY EXAMINER